

IN THE CLAIMS:

The following is a listing of all the claims as they currently stand. Kindly amend claims 1, 4, 19, 20, and 27 and cancel claims 7-18 and 31-37, as noted below. Claims 38-51 are added.

1. (Currently amended) An apparatus for coating a substrate, the apparatus comprising:

a support that supports the substrate; and

at least one movable processing apparatus that ~~can~~ comprises:

A2
a movable chamber configured to create a vacuum environment around a portion of the substrate;

a metal source and a thermal heat source that are spaced from the substrate and configured to deposit a metal layer onto the substrate in the vacuum environment,

wherein the movable chamber processing apparatus is movable between a first position adjacent the substrate and a second position apart from the substrate.

2. (Original) The apparatus of claim 1 wherein the support comprises a conveyor assembly that can move the substrate.

3. (Original) The apparatus of claim 1 wherein the processing apparatus in the first position creates a seal around at least a portion of the substrate.

4. (Currently amended) The apparatus of claim 3 further comprising a vacuum source coupled to the processing apparatus for creating a the vacuum environment in the movable chamber of the processing apparatus around the portion of the substrate.

5. (Original) The apparatus of claim 1 wherein the support positions the substrate along a plane, wherein the processing apparatus is movable orthogonal to the plane.

6. (Original) The apparatus of claim 1 wherein the support positions the substrate along a plane, wherein the processing apparatus is rotatable about an axis that is parallel the plane of the substrate.

7.-18. (Canceled)

19. (Currently amended) The apparatus of claim 1 wherein the at least one processing apparatus comprises a first and second processing apparatus, wherein the first and second processing apparatus are disposed on opposing sides of the substrate.

A2
Cont'd
20. (Currently amended) An apparatus for metallizing a substrate, the apparatus comprising:

a support that can maintain at least a portion of the substrate along a first plane; and

at least one rotatable processing apparatus that is movable substantially orthogonal to the orientation of the substrate;

wherein the processing apparatus comprises a plurality of modular units, the plurality of modular units comprising at least one of a thermoform assembly, a heating assembly, a metallizing assembly, or a cutting assembly, wherein rotation of the processing apparatus allows a different modular unit to be positioned adjacent the substrate.

21. (Original) The apparatus of claim 20 wherein the at least one rotatable processing apparatus comprises a first processing apparatus disposed on a first side of the substrate and a second processing apparatus disposed on a second side of the substrate.

22. (Original) The apparatus of claim 20 wherein the support comprises a conveyor assembly for moving the substrate.

23. (Original) The apparatus of claim 20 wherein the modular units are removable.

24. (Original) The apparatus of claim 20 wherein modular unit comprising the metallizing assembly comprises a cavity for receiving and sealing the substrate.

25. (Original) The apparatus of claim 24 wherein the modular unit comprising the metallizing assembly comprises a conduit, wherein the conduit is releasably connectable to a vacuum source.

26. (Original) The apparatus of claim 24 wherein the modular unit comprising the metallizing assembly comprises a filament and a metal source.

27. (Currently amended) An in-line apparatus for creating an EMI shield, the apparatus comprising:

A2
cont
a conveyor assembly that moves a substrate from a first station position to a second station position, and to a third station;

a movable vacuum shaping assembly disposed at the first station, the vacuum shaping assembly comprising a vacuum source that pulls the substrate against a surface of a mold position to shape the substrate into an EMI shield body;

a metallization assembly at the second station that can create a seal around the shaped substrate, wherein the metallization assembly deposits a metal layer onto the shaped substrate; and

a cutting assembly disposed at the third station second position to cut the shaped substrate, the cutting assembly being movable relative to the shaped substrate.

28. (Original) The in-line apparatus of claim 27 wherein the metallization assembly is releasably coupled to a movable vacuum source.

29. (Original) The in-line apparatus of claim 27 wherein the conveyor assembly positions at least a portion of the substrate along a plane, wherein the shaping assembly, metallization assembly and cutting assembly are movable orthogonal to the plane of the substrate.

30. (Original) The in-line apparatus of claim 27 wherein the shaping assembly comprises a first portion disposed on a first side of the substrate and a second portion disposed on a second side of the substrate.

32. (Withdrawn) A method of manufacturing a EMI shield, the method comprising:

positioning a substrate on a support;
moving a processing apparatus adjacent to the substrate;
depositing a metal layer on the substrate; and
moving the processing apparatus away from the substrate.

33. (Withdrawn) The method of claim 32 further comprising creating a vacuum around at least a portion of the substrate.

A2
cont
34. (Withdrawn) The method of claim 32 further comprising moving the substrate along the support.

35. (Withdrawn) The method of claim 32 further comprising shaping the substrate before depositing the metal layer.

36. (Withdrawn) The method of claim 35 wherein depositing requires rotating a processing apparatus to rotate a shaping module away from the substrate and a metal depositing module toward the substrate.

37. (Withdrawn) The method of claim 35 comprising cutting the shaped substrate after depositing the metal layer.

38. (New) An in-line processing apparatus that comprises a plurality of stations, the apparatus comprising:

a thermoforming station comprising a pre-heating element and a vacuum source that pulls the heated thermoform substrate against a surface of a mold; and

a vacuum metallization station comprising a thermal heat source and a metal source, wherein the vacuum metallization assembly can create a seal around the thermoformed substrate so as to create a vacuum environment around the thermoformed substrate, wherein the vacuum metallization assembly deposits a metal layer onto the thermoformed substrate in the vacuum environment; and

a conveyor assembly that moves the substrate from the thermoforming station to the vacuum metallization station.

39. (New) A vacuum metallization apparatus comprising:
a conveyor that movably supports the substrate;
a vacuum chamber that is movable between a first position in which a vacuum environment may be created around a portion of the substrate and a second position in which the vacuum chamber is spaced apart from the portion of the substrate;
a metal source positioned within the vacuum chamber;
a thermal heat source positioned within the vacuum chamber, the thermal heat source being spaced from the substrate when the vacuum chamber is in the first position; and
a control coupled to the vacuum chamber and thermal heat source, the control configured to control the heat source to deposit a metal layer onto the portion of the substrate when the vacuum environment is created.

A2
Cont

40. (New) The apparatus of claim 20 wherein each of the modular units has a treatment plane disposed in a different plane.

41. (New) The apparatus of claim 20 wherein the modular units are removable.

42. (New) The apparatus of claim 20 wherein the processing apparatus comprises at least three modular units

43. (New) The apparatus of claim 20 wherein the processing apparatus comprises between three and six modular units

44. (New) The apparatus of claim 20 wherein the modular units comprise conduits for communication with a vacuum source, a power source, or a gas source.

45. (New) The apparatus of claim 20 wherein the modular units comprises a cavity.

46. (New) The apparatus of claim 20 wherein the modular units have a triangular cross section.

47. (New) The apparatus of claim 20 wherein at least one of the modular units comprises a heating element.

A2
Cont
48. (New) The apparatus of claim 20 wherein at least one of the modular units comprises a filament and a removable cane.

49. (New) The apparatus of claim 20 wherein the modular unit comprises a cutting element.

50. (New) The apparatus of claim 20 wherein the modular unit comprises a pretreatment assembly.

51. (New) An apparatus for coating a substrate, the apparatus comprising:
a support that supports the substrate; and
at least one movable processing apparatus that comprises:
a movable chamber configured to create a vacuum environment around a portion of the substrate;
metallization assembly spaced from the substrate and configured to deposit a metal layer onto the substrate in the vacuum environment,

ROCKY R. ARNOLD
Application No.: 09/812,075
Page 9

PATENT

wherein the movable chamber is movable between a first position which creates a vacuum environment around the portion of the substrate and a second position in which the movable chamber is spaced apart from the substrate.

DR